

BANDPASS DELTA-SIGMA ANALOG-TO-DIGITAL CONVERTERS**ABSTRACT OF THE DISCLOSURE**

An apparatus includes a delta-sigma analog-to-digital converter for digitalizing an analog input signal. The Δ - Σ ADC includes an analog band-pass loop filter configured to

5 filter an analog signal derived from the analog input signal and a quantizer configured to produce a series of digital signals by sampling the filtered analog signal from the loop filter at a sampling frequency. The loop filter has a center band-pass frequency. The series of digital signals has a data-carrying frequency spectrum that is a mirror image of a data-carrying frequency spectrum of the analog input signal. The data-carrying

10 frequency spectrum of the series is located between the center band-pass frequency and zero.